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ABSTRACT

Approximately 400 students in grades six through nine, many of whom were low achievers, participated in the Teaching and Learning program. The program was based on commercially developed curricula and implemented using principles of individualized instruction. Instruction was characterized by diagnosis and assessment, sequenced objectives, criterion referenced tests and continuous record keeping. Teachers received in-service training on implementation of the curricula. Parents were offered training in helping with their children's homework. The goal of the program was to increase achievement levels and positive attitudes toward reading and mathematics. The following conclusions were drawn from the evaluation: (1) math and reading gains were made by participating students; (2) students' attitudes measured by the semantic differential did not significantly change, but were thought to be good at the outset of the program; (3) teachers participated in activities to increase their competence in managing multi-level instruction; (4) teachers perceived their competence as improved; (5) parental involvement could not be measured although those who participated in homework workshops felt the training benefitted their children. Tables of data and evaluation instruments are appended. (Author/MK)

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DISTRICT OF COLUMBIA PUBLIC SCHOOLS

TEACHING AND LEARNING MODELS FOR MATHEMATICS AND READING E. S. E. A. TITLE IV-C

Final Evaluation Report

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Superintendent of Schools

January 1980 2

PUBLIC SCHOOLS OF THE DISTRICT OF COLUMBIA

TEACHING AND LEARNING MODELS FOR MATHEMATICS AND READING

Final Report

1979

Prepared by
Division of Research and Evaluation

MAR 1 4 1980

TEACHING AND LEARNING MODELS FOR MATHEMATICS AND READING

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SUMMARY

Title

Teaching and Learning Models for Mathematics

Project Director

Jeanette Washington

Project Location

Region II, District of Columbia Public School System

Target Population

Approximately 400 students in grades six through nine in Region II participated in the program. The majority of the students were functioning one or more years below their grade level in math and reading.

Description of the Project

Teaching and Learning Models is based on commercially developed curricula that are implemented using the principles of individualized instruction. The mathematics and reading instruction is characterized by diagnosis and assessment, sequenced objectives, criterion referenced tests, and continuous record keeping. Teachers receive in-service training on the implementation of the curricula and receive ongoing technical assistance from the project director. Parents also are offered training in helping with their children's homework.

Evaluation

Evaluation efforts will focus on the math and reading achievement and attitude of students; the competence in managing multi-level instruction of teachers; and the ability of parents to aid in their children's instruction.

Findings

1. Increases of class mean by one year or more during the year of the project were made by 8 of 9 groups tested on the California Test of Basic Skills. Cautions in interpretations are listed in the report.

2. Significant increases over the comparison group were made on the Prescriptive Math Test and the Prescriptive Reading Test by 6th grade students, and on the CTBS by 6th and 7th graders. Cautions in interpretations are listed in the report.

3. Project teachers participated in activities that would increase their competence in managing multi-level instruction.

4. Teachers' perception of their own abilities is that their competence in managing multi-level instruction has improved.

5. Parent involvement in reading homework workshops was limited. Those parents who did participate felt that their training had a beneficial effect on their children.

6. Students' attitude toward mathematics and reading did not change significantly, but was good before the project began.

Conclusions

1. Math and reading gains were made by students participating in the teaching and Learning Models project.

2. Attitudes of students toward reading and mathematics, as measured by the semantic differential, did not significantly change.

3. Teachers participated in activities that were designed to increase their competence in managing multi-level instruction.

4. Evaluation of parental involvement in the Teaching and Learning Models project could not be adequately measured.

BACKGROUND AND PROJECT OBJECTIVES

Introduction

Purpose - The purpose of the TEACHING AND LEARNING MODELS project is to increase the achievement levels in and, positive attitude toward reading and mathematics. A large percentage of the participants are low achieving students.

Need - The need for this program was based on data indicating severe deficiency in reading and mathematics test scores of students particulary in the southwest corridor of Region II of the District of Columbia Public Schools.

History - Testing completed in the spring of 1976 and 1977 showed that students in the southwest corridor of Region II had from 30-70% of students in mathematics and 35-78% of students in reading, scoring below the average national stanine.

Examination of the data in terms of grade level achievement showed 77-96% of the students to be functioning one or more years below their present grade level.

An in-depth analysis of the test results of a Region II school not in the southwest corridor was also undertaken. Although that school had 70% of its students testing above the average national stanine in mathematics, the analysis showed that 80% of the students lacked proficiency in the fundamental operations of whole numbers and fractions.

From the Region II school data it was determined that a competency based curriculum approach, using special materials and techniques would prove effective in increasing performance.

During the initial year of the project, 1977-78, plans were made to recruit and train teachers, obtain materials, and apply the techniques. Some progress was made but a variety of circumstances prevented complete implementation. During the present (1978-79) school year, more elements of the proposal have been operational.

Description of Project

Target Population - Over 400 students, some in both reading and mathematics, are participating in this program. They are from grades 6 through 9 at the following schools: Amidon Elementary, Bowen Elementary, Deal Elementary, Syphax Elementary, Jefferson Junior High, Randall Junior High, and a non-public school, Sacred Heart.

The target population includes all of the students in the designated classrooms except at Jefferson Junior High where classes were reorganized halfway through the year. The decision to include intact classrooms was based on (1) the high percentage of students achieving below the national stanine and (2) the ease which a similar program could be incorporated into other schools.

Because of delays in receiving materials student participation in the program did not begin until December 1978. Thus, the students had 6 months exposure to the project.

Staffing - There are 13 teachers participating in the program. Teachers were selected on the basis of interest, after the target schools were chosen. Administration, coordination and training are provided by the project director. The program also has a secretary.

The Teaching Learning Models Program

Curriculum Models - The Teaching and Learning Project curriculum is based on three commercially available systems: Charles Merrill's "Linguistic Reading Program," Random House's "The Reading House Series," and Random House's "High Intensity Learning Systems." The High Intensity approach is a mathematics management system using material from 50 different publishers.

Materials - Curriculum aids include textbook series, workbooks, kits, games, duplicating masters, and other reinforcement

Activities - Included in the basic strategy of the Teaching and Learning Models Project are the following components:

1. Diagnosis of student skill level and individual stages of intellectual development
2. The use of one set of sequenced instructional objectives that span grades 1 through 8
3. The use of one set of criterion referenced tests for each objective
4. Continuous record keeping of student progress
5. Classroom management procedures which include individualized instruction

Staff Development - The project director spends 60% of her time providing on-site technical assistance to participating teachers. In addition teachers attend in-service training on the three teaching models.

Parent Involvement - The Teaching and Learning Models Project provides two basic opportunities for parent participation. Some parents work as classroom aides providing tutoring and other support services. All parents are offered the opportunity to receive training in ways in which they can help their children improve mathematics and reading.

Stated Objectives

A. Given a competency-based mathematics and reading curriculum, detailed classroom management procedures, and sequenced instructional activities, 75 percent of the participating students in grades 6, 7, 8, and 9 at Amidon, Bowen, Deal, Jefferson, Randall, Sacred Heart and Syphax will:

1. increase their achievement level in mathematics and reading by one year or more, as measured by the Comprehensive Test of Basic Skills;

2. increase their competency level in mathematics and reading by five or more skills, as measured by the Prescriptive Mathematics Test and the Prescriptive Reading Test;

3. develop a more positive attitude toward mathematics and reading, as measured by Osgood's Semantic Differential;

B. Given a corps of volunteer parent-aides trained to conduct parent workshops on testing and assessing their children's needs in mathematics and reading, fifty percent of the parents of students participating in the program will:

4. increase their support of, involvement in, and understanding of the Prescriptive Mathematics and Reading Tests and the Comprehensive Test of Basic Skills, as measured by the percentage of students present on the days that the above named tests are administered, and by the number of participants in the parent workshops.

C. Given the Participation in two-week summer training workshops and in in-service training courses, and continuous on-the-job supervision in the teaching of mathematics and reading skills/concepts, the participating teachers will increase their competence in managing multi-level instruction, as measured by instruments to be designed by the project director with the assistance of the Division of Research and Evaluation.

D. Given the participation in weekly reading homework workshops, seventy-five percent of the parents of students reading on the first or second grade level will increase their competence in selecting, designing, and supervising activities which increase their children's reading comprehension, as measured by a survey questionnaire to be designed by the director of the project with the assistance of the Division of Research and Evaluation.

EXTERNAL EVALUATION DESIGN

The external evaluation is designed to measure the objectives to determine the degree to which they were met, to determine the success/effectiveness of the project, and to examine certain aspects pertaining to exportability. The following evaluation activities were carried out:

1. Materials concerning teacher workshops were examined to determine whether workshops covering project material were offered and whether teachers attended.

2. Project Director activities were examined to see if on-site technical assistance, planning, conferencing, and other project activities leading to success/effectiveness were provided.

Product Evaluation

Objective A - Skills Achievement

1. A sampling of pre- and post- CTBS scores of Teaching and Learning Model students was analyzed to see what percent of the students gained one year or more.

2. A sampling of pre- and post- CTBS scores of Comparison Group students was analyzed to see what percent of the students gained one year or more.

3. A statistical analysis of the difference between the participating group and the comparison group on pre-post gain scores of the CTBS was made using a test for the significance of the difference between two proportions. The difference would be accepted as significant if Z reached the .05 level.

4. A statistical analysis of the difference between a sampling of pre- and post- PMT and PRT gain scores of participating students and Comparison Group students was done using the Mann-Whitney U-Test for differences between independent samples. The differences would be accepted as significant if U reached the .05 level.

5. A statistical analysis of the difference between pre- and post-test scores of a sampling of participating students on the Semantic Differential was done by testing the significance of the post-test proportion of favorable responses using the pre-test proportion as the expected rate. Differences would be accepted as significant if Z reached the .05 level.

6. A statistical analysis of the difference between post-test scores of favorable responses on the Semantic Differential of participating students and Comparison Group students was done using a test of the significance of the difference between proportions. Differences would be accepted as significant if Z reached the .05 level.

Objective B - Parents Training Parents

This objective was not tested since it was suggested to the project director by the Advisory Council that parents not be used to train other parents.

Objective C - Teacher Participation

1. An analysis of the teacher questionnaire was done to determine the percent of YES and NO responses to each question so worded.

2. An analysis of teacher responses to evaluation opinions was done to determine the percent of responses in the helpful areas.

3. Teacher comments were noted and typical examples recorded.

Objective D - Parent Participation

1. Materials concerning parent workshops were examined to determine whether workshops covering project material were offered and whether teachers attended.

2. An analysis of the parent interview survey was made to determine the percent of responses in various categories.

3. Parent comments were noted and typical examples recorded.

Exportability

The following variables having particular relevance to this project were examined: Target population; community involvement; essential materials (software); and personnel training and technical assistance.

RESULTS AND DISCUSSION

Process Evaluation

Teacher Training - Math workshops were held in September, 1978 for non-public school teachers and in October, 1978 for public schools teachers. English/Reading workshops were held in August, 1978 for non-public school teachers and in November, 1978 for public schools teachers.

All of the reading teachers attended the reading workshop and all but one of the math teachers attended the math workshop.

Project Director Activities - In addition to providing on-site technical assistance to the teachers, the project director participated in planning, conferencing, and following through on other project activities.

Product Evaluation

The product evaluations are reported in three areas relating to the objectives: (1) Summative data on reading, mathematics, and attitudes as stated in Objective A; (2) teacher perceptions (Objective C); and (3) parent involvement (Objective D). Objective B was not tested since it was suggested to the Project Director by the Advisory Council that parents not be used to train other parents.

Objective A - Increase in Math and Reading Skills and Positive Attitudes

Instrumentation - The Comprehensive Test of Basic Skills (CTBS), was used to measure growth in reading and mathematics. The CTBS is a norm referenced test, first published in 1968. Buros 7th and 8th Mental Measurements year books generally give it good reviews. The standardization sample contained 16.7% Black students, which is slightly more than the national average but much less than the District of Columbia and the Teaching and Learning Models population. However, a bias study is reported in the CTBS Technical Bulletin No. 2 page 39, with the following conclusion. "Clearly the test still retains some items that may be unsuitable for measuring the achievement of Black and Spanish-speaking students. However, the large majority of items are acceptable for all three groups."

The Prescriptive Reading Test (PRT) and the Prescriptive Mathematics Test (PMT) are criterion referenced tests based on instructional objectives defined by specialists in the District of Columbia Public Schools. The tests are published by McGraw Hill and are designed to diagnose the strengths and needs of students in the D.C. Public Schools.

The Semantic Differential is a well-known technique for measuring meanings, self-concept, and attitudes. The method was originated by C.E. Osgood and reported as a statistical approach to analyze the relationship among words in a book called, "The Measurement of Meaning" (Osgood, C.E., Suci, G. J. and Tannenbaum, P.H. Urbana, Illinois: University of Illinois Press, 1957). It

is presented as a rating scale containing a continuum of seven units having objectives with bipolar meanings at each end. The student is asked to judge a concept against the scales. The concepts used in this study were "Reading" and "Math". The objectives (See Appendix A) were common ones such as bad/good, tense/relaxed, and wise/foolish.

Math and Reading Results, CTBS - A sampling of classes was given the pre- and post- CTBS tests in October 1978 and May 1979. A total from 3 sixth grades, 4 seventh grades and 2 ninth grades of 245 students was tested representing about half of those exposed to the math and reading programs. (See Table I)

TABLE I

Grade Distribution of Student Sample on Math and Reading Subtests of the CTBS

Grade	Number Tested	Percent of Total in Program at That Grade
6	90	46%
7	118	59%
9	37	52%
Total	245	

In addition, pre- and post-testing was administered to 3 reading and 3 math classes in grades 6 and 7 to students who were not exposed to the program. One reading and one math group were from a school similar in socio-economic makeup to most of those in the program, but located in a different Region. The other four were from schools where the program is being used. These six groups comprise a comparison group. Since there was no random assignment, they cannot be considered control groups, but may be used for comparison purposes with cautions related to internal and external validity being considered.

Scores were reported in Grade Equivalents by pre-test and post-test class means and gain scores. (See Table II)

TABLE II

Pre- and Post-Test Means and Gain Scores on the CTBS for Teaching and Learning Models Students

Grade	Subject	Pre-Test Mean	Post-Test Mean	Gain
6	Reading	4.5	5.5	1.0
6	Math	5.1	6.0	.9
6	Math	4.7	6.2	1.5
7	Reading	4.2	6.4	2.2
7	Reading	5.4	7.0	1.6
7	Reading	6.2	7.5	1.3
7	Math	7.4	8.8	1.4
9	Math	8.0	10.1	2.1
9	Math	7.4	9.7	2.3

Objective A-1 states that 75% of the participating students will increase their achievement level in math and reading by one year or more as measured by the CTBS. Although student individual scores were not available for this analysis, Table II shows that 8 of the 9 groups tested, or 89% increased their class mean by one year or more.

During the same time period the comparison group increased their class mean by one year or more in three of the six classes or 50%. (See Table III)

TABLE III

Pre- and Post-Test Means and
Gain Scores on the CTBS for
Comparison Group Students

Grade	Subject	Pre-Test Mean	Post-Test Mean	Gain Gain
6	Reading	3.0	3.8	.8
6	Math	3.9	5.0	1.1
6	Reading	6.1	5.7	-.4
6	Math	6.3	6.7	.4
7	Reading	3.6	4.6	1.0
7	Math	6.1	7.4	1.3
9	No comparison group available			

Using a test for the significance of the difference between two proportions, the difference between the two groups is significant at the .05 level. (See Table IV)

TABLE IV

Pre-Post Gain of Teaching and Learning
Model Students vs Comparison
Group Students on the CTBS*

	Project Classes (6, 7, 9)		Comparison Classes (6, 7)		
Total Classes Tested	Number of Classes where Gain was one year or more	% of Classes where Gain was one year or more	Total Classes Tested	Number of Classes where Gain was one year or more	% of Classes where Gain was one year or more
9	8	89%	6	3	50%

*Z = 2.04, significant at .05

Tables II and IV show that taking into consideration the cautions listed below, Objectives 1-A has been met.

Results must be interpreted with caution for four reasons:

1. Scores were only reported in grade equivalent with mean scores provided by the project director. In order to analyze data statistically, it is preferable to have individual raw scores.

2. Only group means were reported, and without standard deviations. It is possible that the percent of students reaching the objective was less or greater than the group percentages. However, the evidence of group success on the tests does suggest group success with the program.

3. The comparison group was based on socioeconomic similarity, but may not be representative. No ninth graders were included.

4. A pre-test/post-test design can have many internal and external sources of invalidity.

Math and Reading Results, PMT and PRT - All 6th and 7th graders were given the pre- and post- PMT and PRT in October, 1978 and May,1979. Test results were provided for 243 students including 83 from the comparison classes with pre-post scores reported. Some of the students who took the pre-test were not available for the post-test and vice verse. Some of the students were given different levels of the test on pre- and post- measures, where gain scores would not be comparable. The statistical analysis was done on 85 students for whom both pre- and post-tests were given and were of the same level. (See Table V)

TABLE V

Sample of Test, Grade and Level Distribution of Gain Scores Analyzed

Test	Grade	Level	Number in TLM Group	% of Total	Number in Comparison Group	% of Total
PMT	6	D	6	7%	9	11%
PMT	6	E	18	21%	4	5%
PMT	7	G	10	12%	12	14%
PRT	7	G	14	16%	12	14%

48 + 37 = 85 Total

Because of small sample size and skewed data, the Mann-Whitney t-test for differences between independent samples was used rather than a t-test.

Table VI shows the results of the analyses.

TABLE VI

Gain Scores on PMT and PRT

Test	Grade	Level	TLM Students' Median Pre-Post Gain Score	Comparison Students' Median Pre-Post Gain Score	Difference
PMT	6	D	5	3	2*
PMT	6	E	9	-1	10*
PMT	7	G	6.5	6	.5
PRT	7	G	5	4.5	.5

* The difference is significant at the .05 level

Objective A-2 states that the TLM students will increase their competency level in math and reading by five or more skills as measured by the PMT and the PRT. Test protocols were not available for item analysis so it was not possible to measure the objective as stated. However, Table VI shows that there was a significant gain made by 6th graders on the PMT over the comparison group. Again, those results must be interpreted with caution since the comparison group, though similar to the Teaching and Learning Models group, was not a randomly selected control group, and because of small sample size.

Attitude Toward Math and Reading - A sampling of students was given the Semantic Differential in January, 1979 and June, 1979. The sampling consisted of 187 students pre-tested, including 12 from the comparison group. (See Table VII for grade and subject distribution)

TABLE VII

Grade and Subject Distribution of
Student Sample Tested on
the Semantic Differential

		Pre-Tested		Post-Tested	
Grade	Subject	Number	Percent of Total in the Program	Number	Percent of Total in the Program
6	Reading	67	19%	59	17%
6	Math	101	28%	85	24%
7	Reading	9	3%	13	4%
7	Comparison Group (Reading)	10	3%	12	3%

187 + 169 = 356

The percent of favorable responses out of total responses on the pre-tests and the post-tests, was computed. The data was analyzed using a test of the significance of the difference between proportions, with Z considered significant if it reached the .05 level. (See Table VIII)

TABLE VIII

Pre- and Post-test Responses on the Semantic Differential

Grade	Subject	Pre-Test			Post-Test			Significance of Post-Test Proportion (Z Statistic)*
		Total Favorable Responses	Total Unfavorable Responses	Proportion of Favorable Responses	Total Favorable Responses	Total Unfavorable Responses	Proportion of Favorable Responses	
6	Reading	64	3	.96	57	2	.97	.39
6	Math	95	6	.94	81	4	.95	.39
7	Reading	8	1	.89	10	3	.78	-1.27
7	Comparison Group (Reading)	10	0	1.00	10	2	.83	0

*Differences not significant at the .05 level.

None of the difference are significant at the .05 level. An observation of pre-test data shows that scores were extremely high before students were exposed to the Teaching and Learning Models Program. In other words, students in the groups tested, both experimental and comparison, had a good attitude toward math and reading.

A test of the significance of the difference between proportions of favorable responses on the post-test scores of students in the program versus those in the comparison group, was also performed (See Table IX)

TABLE IX

Teaching and Learning Models Group vs Comparison Group on the Post-Test of the Semantic Differential

	Total Favorable Responses	Total Unfavorable Responses	Proportion of Favorable Responses	Z Statistic
Teaching and Learning Models Group	148	9	.94	1.45*
Comparison Group	10	2	.83	

*The difference is not significant at the .05 level.

Objective A-3 states that students will develop a more positive attitude toward mathematics and reading as measured by Osgood's Semantic Differential. The objective was not met. However, there are three factor that must be taken into consideration in interpreting these results: (1) Pre-test scores were so high that students "topped out" on this measure. (2) With scores at the extreme high end of the scale, regression toward the mean would be expected, with post-test scores tending to be lower than pre-test. The comparison group scores, without intervention demonstrate this factor. (3) A pre-test, post-test design can have many internal and external sources of invalidity. (4) The comparison group may not be representative.

Teacher Perceptions - A questionnaire was sent to teacher participants in the Teaching and Learning Models Program to assess their involvement in the program (See Appendix B). The questionnaire was completed by 8 of the 13 teachers, a 62% return. Included were teachers representing all of the grades and subjects as well as both public and non-public schools.

The first question concerned training. (See Table X).

TABLE X

Teacher Responses to Questions Concerning
Training for Project Skills

Have you attended workshops or received training in the following:	Responses			
	Yes		No	
	Number	Percent	Number	Percent
a. Managing multi-level instruction?	7	88%	1	13%
b. Teaching of math and/ or reading skills?	8	100%	0	0%
c. Checking for student's level of learning?	6	75%	2	25%
d. Implementation of CBC in math and/or reading?	5	63%	3	38%
e. Other?	2	25%	6	75%

Where descriptions were included, teachers either mentioned receiving instruction in a specific program (ex. Random House) or made positive comments about the project (ex. "The check-out tests are very helpful.")

Question two dealt with supervision (See Table XI)

TABLE XI

Teacher Responses to Question
Concerning Supervision

	Responses			
	Yes		No	
	Number	Percent	Number	Percent
Have you received on-the-job supervision?	7	88%	1	13%

Comments concerning on-the-job supervision were all positive, (ex. "Mrs. J. Washington has visited the classroom on several occasions and she has been very helpful in setting up the program.")

Questions three and four dealt with instructional activities and procedures. (See Table XII)

TABLE XII

Teacher Responses to Questions Concerning Instruction

	Responses			
	Yes		No	
	Number	Percent	Number	Percent
Have you developed sequenced instructional activities?	4	50%	4	50%
Which of the following instructional procedures do you use in your class-classroom				
a. Progress plotter for each assigned objective	2	25%	6	75%
b. The check-in/check-out criterion referenced test system	5	63%	3	38%
c. Classroom management system	8	100%	0	0%

Comments from those who described sequenced instructional activities they had developed ranged from adapting material (ex. "Usage of S.R.A. materials,") to original materials (ex. "I have made learning packets for whole number development, fractional development, and decimal development.")

Fewer comments were written concerning instructional procedures but those that were included were specific (ex. "Each child always takes a check-out test before going on to the next level. Students don't always take the check-in test.")

Question five was concerned with homework (See Table XIII).

TABLE XIII

Teacher Responses to Question
Concerning Homework

	Responses			
	Yes		No	
	Number	Percent	Number	Percent
Do you provide students with work to be done at home?	5	63%	3	38%

Those who answered, "Yes", were also to respond on how often homework was assigned. Responses ranged from "Daily" to "Two or three times a week" with the average being four times a week.

Questions six through nine were opinion questions evaluating the program. (See Table XIV)

TABLE XIV

Teacher Responses to Project Evaluation Opinionnaire

	Very Helpful		Helpful		Undecided		Not Helpful		Not Applicable	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
How would you evaluate the staff development session(s) you attended?	3	38%	4	50%	-	-	1	13%	-	-
How would you evaluate the on-the-job supervision you have received?	1	13%	5	63%	-	-	-	-	2	25%
How would you describe the feedback, recommendations, and assistance you have received from the project coordinators?	2	25%	5	63%	-	-	-	-	1	13%
How would you describe the effect of this project on: a. Student math competency?	2	25%	4	50%	-	-	-	-	2	25%
b. Student reading competency?	1	13%	6	75%	-	-	-	-	1	13%
c. Student motivation?	4	50%	4	50%	-	-	-	-		

According to Table XIV 85% of the respondents considered the parts of the project they were asked to evaluate, as being helpful or very helpful with most of the other responses being in the "Not Applicable" category.

Where comments were written at the end of the questionnaire, they were favorable toward the program. (Ex. "I feel the program has been extremely helpful to me, especially with the multi-levels in the classroom.)

Objective C states that the participating teachers will increase their competence in managing multi-level instruction. The questionnaire results show that, in general, project teachers were involved in activities that would increase their competence and that, in their perception, the increase has occurred.

Parent Participation, Workshops - Several attempts were made to involve parents in the project, in addition to the parent aides that were employed. Workshops were planned for February and March but were postponed due to unforseen circumstances. However, on April 17, 1979, an all-day workshop was held. (See Appendix C.)

The workshops were originally intended to be weekly, and to be for parents of the 12 students identified as reading at the first or second grade level. When it was changed to an all day workship, parents of other students were invited. Six parents attended the workshop.

An evaluation instrument, "Checking In - Checking Out" (See Appendix D) was used with the parents as a learning tool.

Parent Participation, Survey - A sampling of 10 parents were interviewed concerning their participation, feelings and ideas about the program. (See Appendix E).

The first question was about parent-teacher conferencing. (See Table XV).

TABLE XV

Parent Interview Responses
Concerning Conferencing

	Responses			
	Yes		No	
	Number	Percent	Number	Percent
Have you had a conference with your child's teacher about the program?	10	100%	0	-

The second question dealt with the parents feelings. (See Table XVI)

TABLE XVI

Parent Interview Responses
Concerning Parents Feelings
Toward the Program

	Very Positive Statement*		Positive Statement**		Neutral Statement***	
	Number	Percent	Number	Percent	Number	Percent
How do you feel about the program?	8	80%	1	10%	1	10%

* Example - "Very positive and worthwhile"

** Example - "I think it's an improvement over last year's program"

*** Example - "I recently was informed about the project."

The third question asked about the children's feelings. (See Table XVII).

TABLE XVII

Parent Interview Responses Concerning
Children's Feelings Toward the Program

	Positive Statement About Program and Materials*		Neutral Statement**	
	Number	Percent	Number	Percent
How does your child feel about the program?	9	90%	1	10%

* Example - "He likes using a variety of materials"

** Example - "He has not said very much about the program"

Question four was concerned with achievement improvement. (See Table XVIII).

TABLE XVIII

Parent Interview Responses Concerning Children's Skills Improvement

Made Improvement

Do you feel that your child has shown improvement in mathematics and reading skills?	Yes		In Reading But Not Math		No Response	
	Number	Percent	Number	Percent	Number	Percent
	6	60%	2	20%	2	20%

How Much

How much?	One Year		A Lot		No Response	
	Number	Percent	Number	Percent	Number	Percent
	1	10%	5	50%	4	40%

Question five was related to encouraging parents to attend workshops. (See Table XIX)

TABLE XIX

Parent Interview Responses Concerning
Parent Participation in Workshops

	Suggestion Concerning Timing*		Parent Talking To Parent		No Suggestions	
	Number	Percent	Number	Percent	Number	Percent
Do you have suggestions for encouraging more parents to attend project workshops?	3	30%	1	10%	6	60%

* Example - "Working parents have a difficult time attending meetings during the day. Perhaps an evening meeting."

Question six was about workshop content. (See Table XX).

TABLE XX

Parent Interview Responses
Concerning Workshop Content

	Suggestion*		No Suggestion	
	Number	Percent	Number	Percent
What do you think parents would like to have included in the workshops?	1	10%	9	90%

* Example - "Administration and teachers."

Objective D states that given the participation in weekly reading homework workshops, 75% of the parents of students reading on the first or second grade level will increase their competence in selecting, designirg, and supervising activities which increase their children's reading comprehension. It was not possible to measure the objective as stated. However, parents who attended the workshop and those who responded to the interviews have demonstrated an interest in the program and positive feelings toward it. In general, they state that they feel the activities have had a beneficial effect on their children. However, the number of parents involved is too small to generalize.

Exportability - In their manual, SHARING EDUCATIONAL SUCCESS, A Handbook for Validation of Educational Practices, by the Office of Education (1976), a validated practice is exportable if, "(1) it is feasible to transport it to other school districts and (2) it can be adopted or adapted by other school districts with similar needs and environments," (p. 46). In addition to the success/effectiveness of the project, exportability is judged on the basis of the following 13 criteria.

1. Learner Needs
2. Continuation of Learner Elements with State or Local Funds
3. Willingness to serve as a Demonstration Site if Funded for Dissemination
4. Target Population
5. Learner Involvement
6. Institutional Variables
7. Community and Home Variables
8. Activities Critical to Success
9. Essential Materials (Software)
10. (Essential) Equipment (Hardware) or Unique Facilities
11. Personnel
12. Personnel Training
13. Special Problems

All 13 items listed above are important but the ones that were considered most relevant for this project were:

a. Target population

b. Community and home involvement

c. Essential materials (software)

d. Personnel training and technical assistance.

Exportability

Target Population - The diversity of student socioeconomic levels and the demographic characteristics of the region is stressed in the project proposal. The provision of three curricula is one example of the project's efforts to accommodate this diversity. Accordingly, any subsequent adaption of the Teaching and Learning Models project must adequately identify those variables along which a given population can vary. A comparison can then be made to the population for which the Teaching and Learning Models project was intended.

Community Involvement - Parent participation in the Teaching and Learning Models proposes helping parents help their child with homework. This involves listening to the child read, asking prepared questions, making flash cards, and playing phonics and spelling games. Parents also are invited to assist teachers two days per week. Successful implementation of Teaching and Learning Models at any site ideally would have this type of involvement.

Essential Materials (Software) - Teaching and Learning Models is based on three commercially available curricula: Charles Merrill, Random House, and High Intensity which is a compilation of material from 50 different publishers. In order to adhere to the Teaching and Learning Models project, prospective adaptions would also have to adopt the necessary curricula.

Personnel Training and Technical Assistance - Implementation of the prescribed curricula requires formal training. Such training and the ongoing technical assistance provided by the project director are considered to be essential components of the Teaching and Learning Models project. Prospective project directors should be prepared to allocate at least 60% of their time for providing technical assistance to individual school sites.

Findings

1. Increases of class mean by one year or more during the year of the project were made by 8 of 9 groups tested on the California Test of Basic Skills. Cautions in interpretation are listed in the report.

2. Significant increases over the comparison group were made on the Prescriptive Reading Test by 6th grade students, and on the CTBS by 6th and 7th graders. Cautions in interpretation are listed in the report.

3. Project teachers participated in activities that would increase their competence in managing multi-level instruction.

4. Teachers' perception of their own abilities is that their competence in managing multi-level instruction has improved.

5. Parent involvement in reading homework workshops was very limited. Those parents who did participate felt that their training had a beneficial effect on their children.

6. Students attitude toward mathematics and reading did not change significantly, but was good before the project began.

CONCLUSIONS

1. MATH AND READING GAINS WERE MADE BY STUDENTS PARTICIPATING IN THE TEACHING AND LEARNING MODELS PROJECT. Gains were demonstrated on the California Test of Basic Skills and Prescriptive Math Test and Prescriptive Reading Test were made by the groups tested.

2. ATTITUDES OF STUDENTS TOWARD READING AND MATHEMATICS, AS MEASURED BY A SEMANTIC DIFFERENTIAL, DID NOT SIGNIFICANTLY CHANGE. Scores were high to begin with leaving no appreciable room for improvement on the scale used.

3. TEACHERS PARTICIPATED IN ACTIVITIES THAT WERE DESIGNED TO INCREASE THEIR COMPETENCE IN MANAGING MULTI-LEVEL INSTRUCTION. Teachers have attended workshops, received supervision and technical assistance, and developed instructional activities according to the outlined curricula. A majority of the teachers (85%) are of the opinion that the project has improved their ability to manage multi-level instruction.

4. EVALUATION OF PARENTAL INVOLVEMENT IN THE TEACHING AND LEARNING MODELS PROJECT COULD NOT BE ADEQUATELY MEASURED. The number of parents attending training sessions was too small to make generalizations to the entire project.

EVALUATION RECOMMENDATIONS

1. ACHIEVEMENT TESTING DATA SHOULD BE REPORTED IN RAW SCORE FORM. An accurate analysis can only be carried out using individual raw scores.
2. A MORE SENSITIVE MEASURE OF ATTITUDES THAN THE SEMANTIC DIFFERENTIAL SHOULD BE USED. Initial measurements of attitudes were so high that there was no room to demonstrate significant gains on post-testing.

3. AN OPERATIONAL METHOD OF MEASURING TEACHER COMPETENCE IN MANAGING MULTI-LEVEL INSTRUCTION SHOULD BE IDENTIFIED. Self-reports provide partial information which should be supplemented by objective measures.

4. A DETERMINATION SHOULD BE MADE AS TO WHETHER OR NOT OBJECTIVE D. (CONCERNING PARENT INVOLVEMENT) CAN BE MEASURED AS STATED. The objective contains too many intervening variables which influence outcomes which then cannot be effectively measured.

APPENDIX A

Semantic Differential Rating Scale
Used in this Project

SEMANTIC DIFFERENTIAL

READING

BAD	___	___	___	___	___	GOOD
INTERESTING	___	___	___	___	___	BORING
FAIR	___	___	___	___	___	UNFAIR
TENSE	___	___	___	___	___	RELAXED
WEAK	___	___	___	___	___	STRONG
SAD	___	___	___	___	___	HAPPY
WISE	___	___	___	___	___	FOOLISH
PLEASURABLE	___	___	___	___	___	PAINFUL

APPENDIX B

Teacher Questionaire Assessing
Involvement in the Program

DIVISION OF RESEARCH AND EVALUATION

Title IV Part C Evaluation Unit

Teaching and Learning Models for Mathematics and Reading

The purpose of this questionaire is to assess teacher involvement in the teaching and Learning Models ESEA Title IV Part C Project. Please respond to the following items as completely as you can. Thank you for your cooperation.

Name of School	Subject Taught	Date

1. Have you attended workshops or received training in the following: (If yes, please describe)

   a. Managing multi-level instruction — Yes ☐ No ☐

   b. Teaching of math and reading skills — Yes ☐ No ☐

   c. Checking for the student's level of learning — Yes ☐ No ☐

   d. Implementation of CBC in math and/or reading — Yes ☐ No ☐

   e. Other — Yes ☐ No ☐

2. Have you received on-the-job supervision? If yes, please describe. — Yes ☐ No ☐

3. Have you developed sequenced instructional activities? If yes, please describe. — Yes ☐ No ☐

4. Which of the following instructional procedures do you use in your classroom? Please describe.

   a. Progress plotter for each assigned instructional objective — Yes ☐ No ☐

   b. The check-in/check-out criterion referenced test system — Yes ☐ No ☐

   c. Classroom management system — Yes ☐ No ☐

5. Do you provide students with work to be done at home? If yes, how often? — Yes ☐ No ☐

Please indicate your opinion with a check-mark:

	Very Heplful	Helpful	Undecided	Not Helpful	Not Applicable
6. How would you evaluate the staff development session(s) you attended?					
7. How would you evaluate the on-the-job supervision you have received?					
8. How would you describe the feedback, recommendations, and assistance you have received from the project coordinator?					
9. How would you describe the effect of this project on:					
a. student math competency?					
b. student reading competency?					
c. student motivation?					

10. Comments:

APPENDIX C

Parent Workshop Agenda

TEACHING AND LEARNING MODELS FOR MATHEMATICS AND READING

ESEA TITLE IV C

PARENT WORKSHOP

April 17, 1979
9:30 A.M. - 3:00 P.M.

Southwest Public Library

Dr. Dorothy L. Johnson
Assistant Superintendent

Mrs. Jeannette M. Washington
Project Director

Mrs. Florence W. Jackson
Assistant for Instruction

Mrs. Doris H. Hundley
Consultant

D.C. PUBLIC SCHOOLS

REGION II

FIRST SESSION — Tuesday, April 17, 1979

At the end of this session, parents in attendance will:

- understand the purpose of the project
- have an overview of the instructional materials being used
- be able to assist students with homework assignments related to project materials

9:30 A.M. Registration
Exhibit of Materials

Getting Acquainted
"Checking In" - A Pre-test

Overview of Project

Activity Period in Centers
Working with Homework Helpers

"Checking Out" - A Post-test
Questions/Discussion

11:30 A.M. Break

SECOND SESSION

At the end of this session, parents in attendance will:

- understand the importance of various tests administered in D.C.P.S. (PMT, PRT, CTBS)
- be able to interpret test results which are sent home
- complete Homework Helper activities

SECOND SESSION cont'd

12:30 P.M. Discussion/Presentation
A Parent's Guide to Testing

Presentation/Discussion
Prescriptive Reading Test
Prescriptive Mathematics Test
Comprehensive Test of Basic Skills
Home Reports to Parents

2:30 P.M. Homework Helpers Activity
Review and Wrap-up

Presenters: Mrs. Jeannette M. Washington
Mrs. Doris H. Hundley

** Be sure you have signed in and given your Social Security number and address with the zip code.

Purpose of Project

To implement a competency based instructional program designed to:

1. increase the achievement level of students in mathematics and reading, as measured by the Comprehensive Test of Basic Skills

2. increase the competency level in mathematics and reading, as measured by the Prescriptive Mathematics Test and the Prescriptive Reading Test

3. develop a more positive attitude toward mathematics and reading

** Copies of the project proposal are available for study in the Region II Office.

APPENDIX D

Evaluation Instrument Used with Parents During Parent Workshop

PARENTS' WORKSHOP ON TEACHING AND LEARNING MODELS

- SESSION I -

"CHECKING IN - CHECKING OUT"

Directions

Read each question. Look at the answers from A - I. Select the answer you feel is correct and place that letter on the line in front of the number of that question.

_____1. What is the Teaching and Learning Models Project?

_____2. What materials are used?

_____3. What is meant by Mastery Learning?

_____4. What is a pre-test?

_____5. What is meant by demonstration of mastery?

_____6. What are prescriptions?

_____7. How will a pupil know he is making progress?

_____8. How can I help at home?

_____9. How much better will my child be doing at the end of the school year?

Answers

A. Within one school year, 75 percent of the participating students will increase their achievement levels in mathematics and reading by one year or more, as measured by the Comprehensive Test of Basic Skills (CTBS).

B. This is a Title IV, Part C project in Region II schools. It is designed to promote the reading and mathematics achievement of students.

C. Parents can help at home by providing a quiet place to study. They are also encouraged to participate in the reading homework assignments of their children.

D. Mastery Learning refers to the simple common sense idea that learning materials should be clearly explained, structured in small learning steps, and checked for demonstration of mastery.

E. The materials used in the project include: The Reading House Series from Random House and the Merrill Reading Program.

F. A test given to find out the students' needs is called a pre-test.

G. Prescriptions are the teaching materials used to help to master a skill.

H. A student shows that he has mastered a skill in the Random House Series when he gets 80% of the items on the Post Test correct.

I. When a student completes a prescription, he corrects his own work and records the score on the Progress Plotter. He must make a score of 80% for the satisfactory completion of a prescription.

APPENDIX E

Parent Interview Questionnaire

TEACHING AND LEARNING MODELS FOR MATHEMATICS AND READING

ESEA TITLE IV C

PARENT INTERVIEW

Your child has been participating in a special federally funded project this school year for improving his/her mathematics and reading skills.

The project staff would like to have more parent participation in the project's activities next school year.

Questions

1. Have you had a conference with your child's teacher about the program?

2. How do you feel about the program?

3. How does your child feel about the program?

4. Do you feel that your child has shown improvement in mathematics and reading skills? How much?

5. Do you have any suggestions for encouraging more parents to attend workshops related to homework assignments and the interpretation of the various tests results?

6. What do you think parents would like to have included in the workshops?